

**ENHANCED FREE LAYER FOR A SPIN VALVE SENSOR****ABSTRACT OF THE DISCLOSURE**

A spin valve sensor is provided with a negative ferromagnetic coupling field  
5 -H<sub>FC</sub> for properly biasing a free layer and a spin filter layer is employed between the  
free layer and a capping layer for increasing the magnetoresistive coefficient  $dr/R$  of  
the spin valve sensor. A top portion of the free layer is oxidized for improving the  
negative ferromagnetic coupling field -H<sub>FC</sub> when the spin filter layer is employed for  
increasing the magnetoresistive coefficient  $dr/R$ .

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